Jim Plourde

Schneider Electric

Data Acquisition

- Combined metering: electricity, gas, steam, air, water
- Monitor your distribution system, including:
  - Advanced Electric meters
  - Circuit breakers
  - Protective relays
- Interface with third-party meters, transducers, PLCs, RTUs, power distribution or mitigation equipment
- Scalable platform, add devices as you need them
- Integrate with other systems:
  - Energy management, SCADA, BAC, DCS, ERP
  - Use ODBC, XML, OPC, email, FTP, CSV, PQDIF, web services


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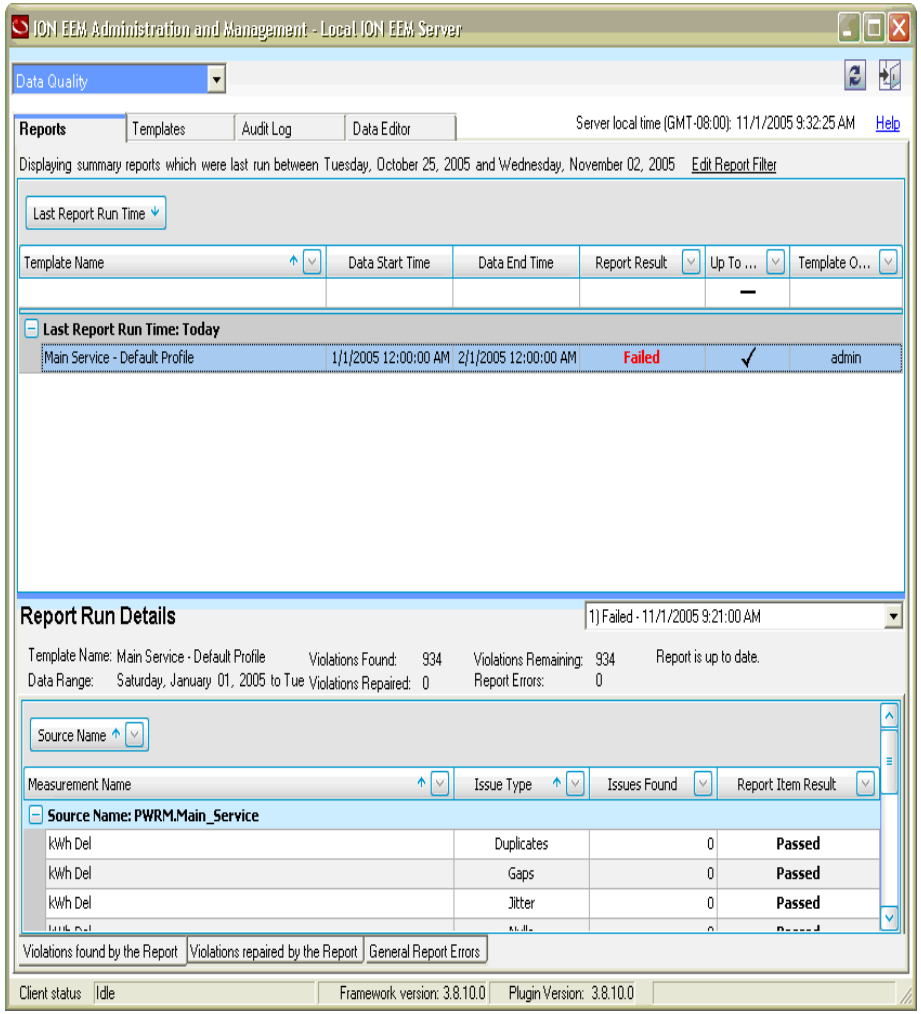
HIS END UP
FRAGILE

Data Quality



- Automatic Correction
  - Automatic Jitter correction
  - Detection and correction of duplicates
  - Automatic straight-line interpolation over a range of gaps.
- Measurement Validation/Validation Schedules
  - Any parameter in the system can be validated
  - Data quality routines can be set to run on an hourly , daily, weekly, or monthly schedule
- Data Quality Reporting & Editing
  - The Data Quality Engine reports indicate the overall success or failure of a data quality run
  - Every data quality action needs to be logged in the audit trail

What Do You Do With the Data?

- **Manage Energy Costs**
  - Cost Allocation
  - Procurement Optimization
  - Power Factor Correction
- **Energy Conservation Measures**
  - Measurement and Verification
  - Infrastructure Optimization
  - Demand Response/Load Curtailment
- **Emission Reporting**
- **Energy Security/Reliability**
  - Energy Quality Monitoring
  - Enhanced Maintenance Capabilities

Plourde: 07Dec10, FEMP Sub-Metering Working Group

Energy Costs

-Cost allocation

- Automatically collect, calculate, and report costs for buildings, tenants, etc.
- Compare efficiencies
- Determine the true impact of energy prices
- Identify opportunities to better balance consumption
- Remove utility budgeting guesswork
- Minimize administrative costs and reduce data entry errors

Campus Recharge by Source

Monday, January 01, 2007 to Wednesday, January 31, 2007

Administration Buidling

Commodity	Consumption		Cost
	Actual	Adjusted	
Electricity	575,495.31	575,495.31	$32,661.54

Computer Science Building

Commodity	Consumption		Cost
	Actual	Adjusted	
Chilled Water	3,696,350.39	3,696,350.39	$32,166.12
City Water	43,922.35	43,922.35	$481.56
Electricity	457,544.82	457,544.82	$25,967.40

Demasson School of Art

Commodity	Consumption		Cost
	Actual	Adjusted	
Electricity	50,302.20	50,302.20	$2,854.84

Engineering Building

Commodity	Consumption		Cost
	Actual	Adjusted	
Chilled Water	2,962,544.30	2,962,544.30	$25,780.45
City Water	3,601.38	3,601.38	$39.49
Electricity	1,213,857.81	1,213,857.81	$68,891.03
Gas	1,366.90	1,366.90	$96.87

Library

Commodity	Consumption		Cost
	Actual	Adjusted	
Electricity	638,362.50	638,362.50	$36,229.49

Campus Recharge by Commodity

Monday, January 01, 2007 to Wednesday, January 31, 2007

Chilled Water

Description	Consumption		Cost
	Actual	Adjusted	
Computer Science Building	3,696,350.39	3,696,350.39	$32,166.12
Engineering Building	2,962,544.30	2,962,544.30	$25,780.45

City Water

Description	Consumption		Cost
	Actual	Adjusted	
Computer Science Building	43,922.35	43,922.35	$481.56
Engineering Building	3,601.38	3,601.38	$39.49

Electricity

Description	Consumption		Cost
	Actual	Adjusted	
Administration Buidling	575,495.31	575,495.31	$32,661.54
Computer Science Building	457,544.82	457,544.82	$25,967.40
Demasson School of Art	50,302.20	50,302.20	$2,854.84
Engineering Building	1,213,857.81	1,213,857.81	$68,891.03
Library	638,362.50	638,362.50	$36,229.49
Stanlake School of Business	401,842.12	401,842.12	$22,806.06
Student Services Building	592,607.37	592,607.37	$33,632.72

Gas

Description	Consumption		Cost
	Actual	Adjusted	
Engineering Building	1,366.90	1,366.90	$96.87

Plourde: 07Dec10, FEMP Sub-Metering Working Group

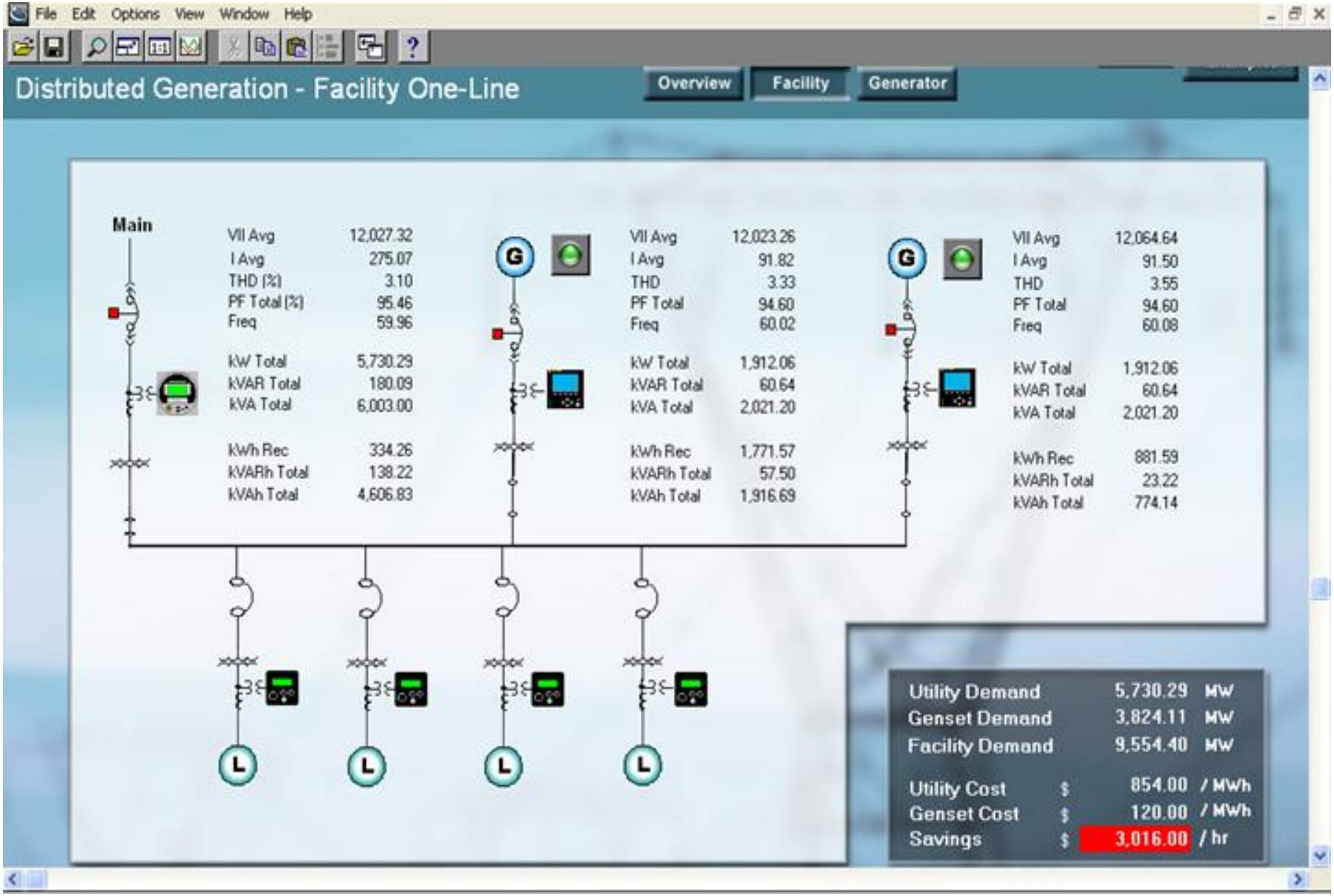
Energy Costs

-Procurement Optimization

Use EMCS information to negotiate bulk energy purchases to reduce price volatility and lower energy costs:

- Consolidate cost information into easy to understand reports
- Track real-time Internet pricing
- Automatically start generators or shed loads at cost thresholds
- Integrate costs for fuel, maintenance environmental levies, and interconnection

- Participate in a spot energy market programs
- Compare which purchasing options provide the most benefit



Plourde: 07Dec10, FEMP Sub-Metering Working Group

Energy Costs

-Power Factor Correction

An EMCS alerts you to adverse trends so you, or your EMCS, can take corrective action to eliminate penalties.

Use your EMCS to monitor power factor and control:

- Capacitor banks
- Load tap changers
- Filter banks

Control energy costs

Target energy efficiencies

Allocate costs

Minimize capital expenses

Maximize uptime

Centralize facilities management

Optimize maintenance

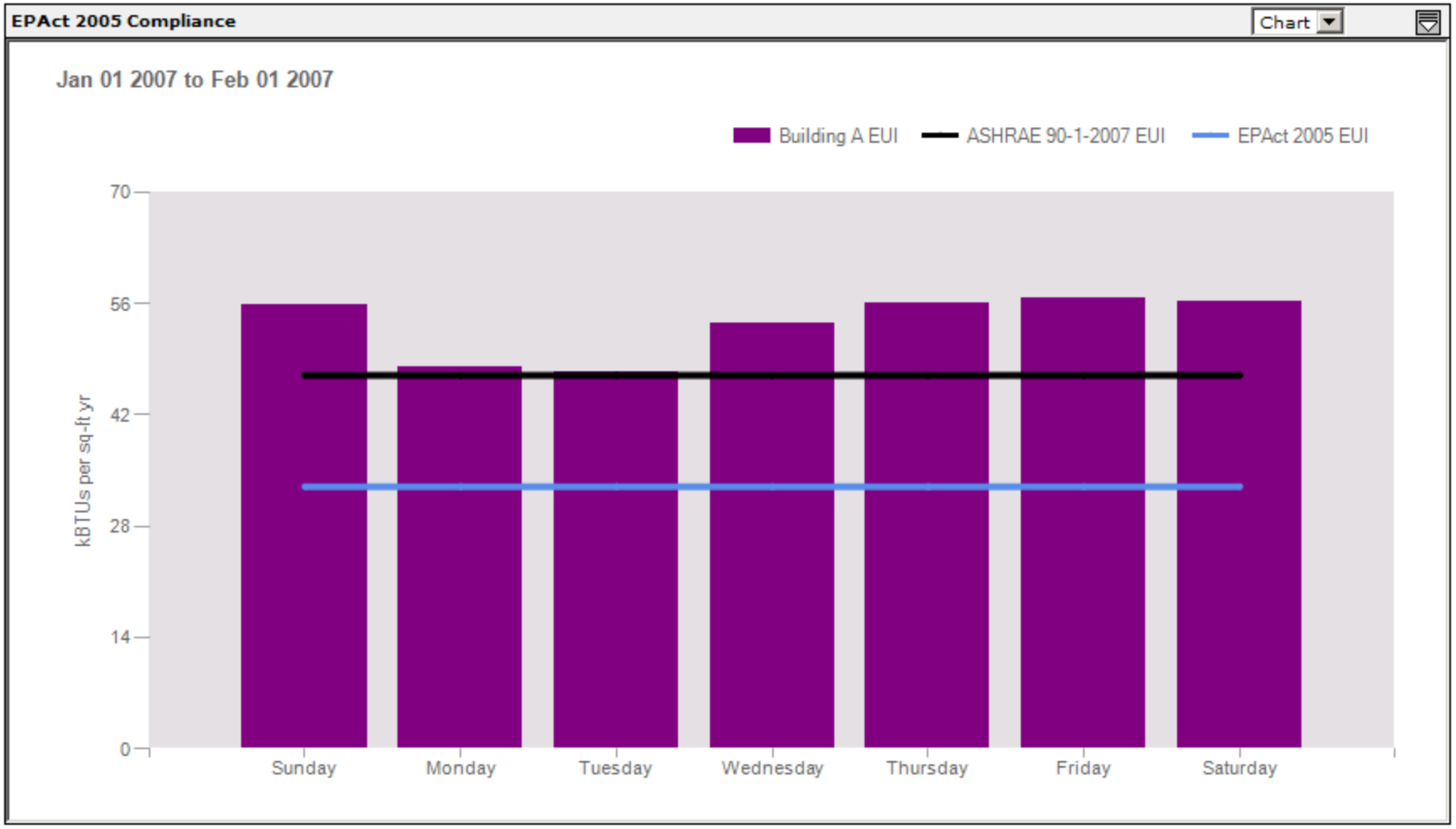
Energy Efficiency

-Measurement and Verification

Assure your energy efficiency investments are sustainable, adjustable and realize maximum long term payback with an EMCS.

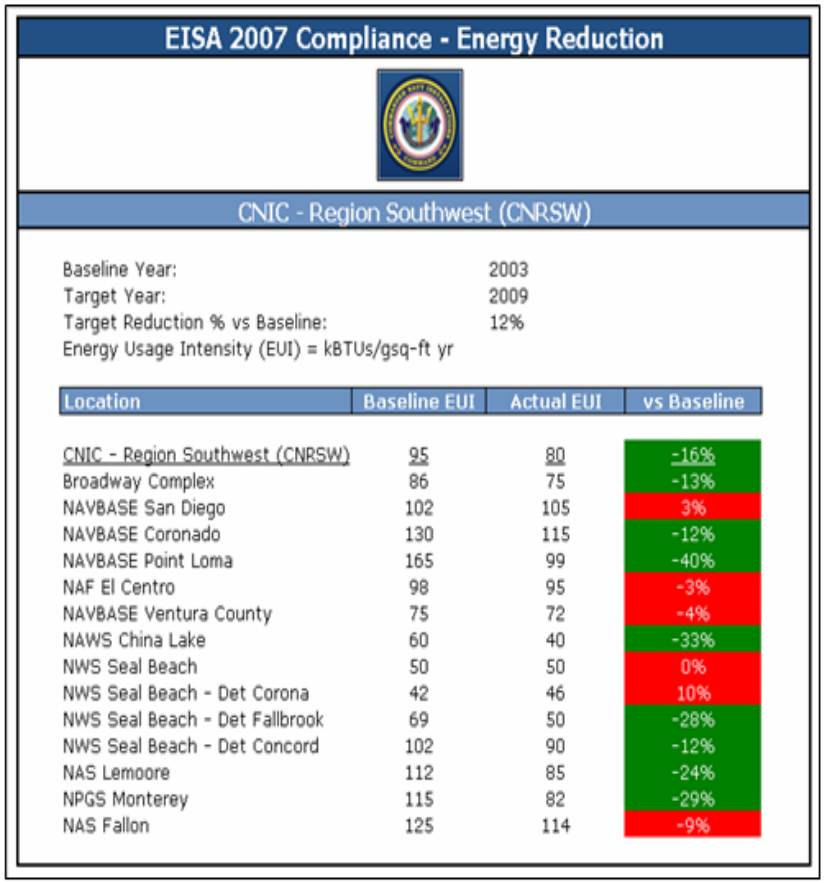
- Benchmark against other facilities
- Validate performance to EE Mandates (EPACT, EISA, EOs)
- Forecast results to compare with different benefit scenarios
- Document results so you can verify efficiency program financial benefits
- Validate ESPC/UESC savings
- Validate utility bills, document errors and identify false penalty charges

EPAct 2005 Compliance



Federal Mandate Compliance

EISA 2007 Compliance



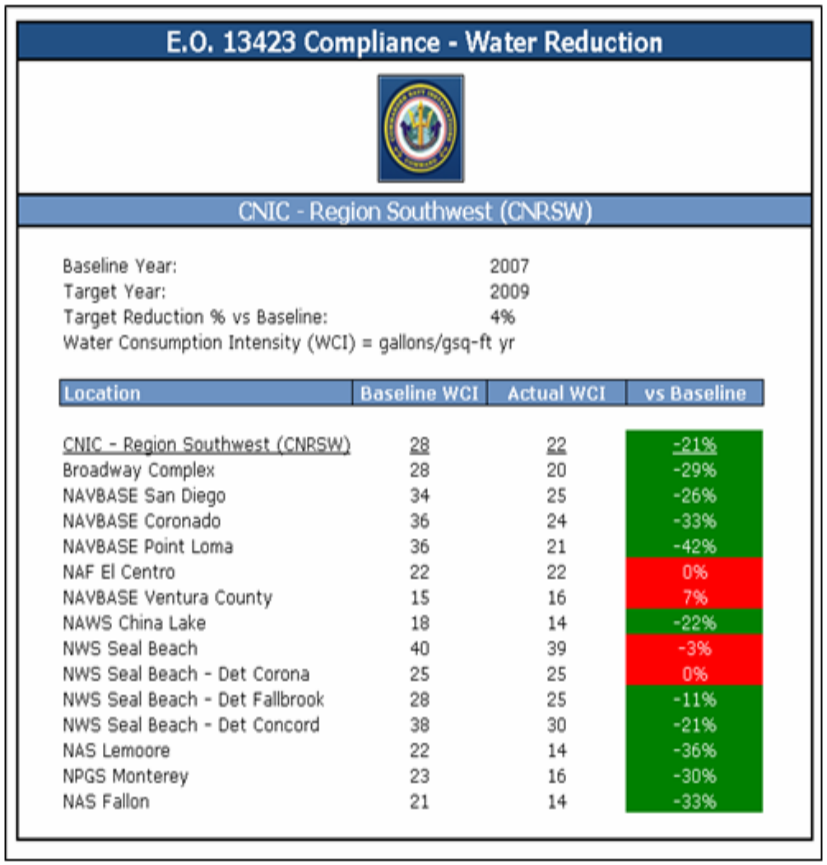
EISA 2007 Compliance - Energy Reduction

CNIC - Region Southwest (CNRSW)

Baseline Year: 2003
Target Year: 2009
Target Reduction % vs Baseline: 12%
Energy Usage Intensity (EUI) = kBTUs/gsq-ft yr

Location	Baseline EUI	Actual EUI	vs Baseline
CNIC - Region Southwest (CNRSW)	95	80	-16%
Broadway Complex	86	75	-13%
NAVBASE San Diego	102	105	3%
NAVBASE Coronado	130	115	-12%
NAVBASE Point Loma	165	99	-40%
NAF El Centro	98	95	-3%
NAVBASE Ventura County	75	72	-4%
NAWS China Lake	60	40	-33%
NWS Seal Beach	50	50	0%
NWS Seal Beach - Det Corona	42	46	10%
NWS Seal Beach - Det Fallbrook	69	50	-28%
NWS Seal Beach - Det Concord	102	90	-12%
NAS Lemoore	112	85	-24%
NPGS Monterey	115	82	-29%
NAS Fallon	125	114	-9%

E.O. 13423 (Water) Compliance



E.O. 13423 Compliance - Water Reduction

CNIC - Region Southwest (CNRSW)

Baseline Year: 2007
Target Year: 2009
Target Reduction % vs Baseline: 4%
Water Consumption Intensity (WCI) = gallons/gsq-ft yr

Location	Baseline WCI	Actual WCI	vs Baseline
CNIC - Region Southwest (CNRSW)	28	22	-21%
Broadway Complex	28	20	-29%
NAVBASE San Diego	34	25	-26%
NAVBASE Coronado	36	24	-33%
NAVBASE Point Loma	36	21	-42%
NAF El Centro	22	22	0%
NAVBASE Ventura County	15	16	7%
NAWS China Lake	18	14	-22%
NWS Seal Beach	40	39	-3%
NWS Seal Beach - Det Corona	25	25	0%
NWS Seal Beach - Det Fallbrook	28	25	-11%
NWS Seal Beach - Det Concord	38	30	-21%
NAS Lemoore	22	14	-36%
NPGS Monterey	23	16	-30%
NAS Fallon	21	14	-33%